

INTERNATIONAL BULLETIN OF PLANT PROTECTION

OFFICIAL CORRESPONDENTS FOR PLANT PROTECTION TO THE INTERNATIONAL INSTITUTE OF AGRICULTURE.

(The countries are arranged in the French alphabetical order. The addresses of correspondents are in the language used by the respective Governments in their official communications with the Institute).

French Equatorial Africa.

1. BORIES, Ingénieur du cadre général de l'Agriculture, affecté à la Colonie du Gabon, Gouvernement Général de l'Afrique Equatoriale Française, B r a z z a v i l l e.
2. DEGEILH, Conducteur des travaux agricoles de l'Afrique Equatoriale Française, affecté à la Colonie du Gabon, Gouvernement Général de l'Afrique Equatoriale Française, B r a z z a v i l l e.
3. NÈME, Fonctionnaire du Service de l'Agriculture de l'Afrique Equatoriale Française, affecté à la Colonie de l'Oubangui-Chari, Gouvernement Général de l'Afrique Equatoriale Française, B r a z z a v i l l e.
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French West Africa.

5. Gouvernement Général de l'Afrique Occidentale Française, D a k a r.

Algeria.

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Eritrea.

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48. ZOLK, Karl, Chef de la Station entomologique expérimentale de l'Université, Tartu (Esthonië).

French Establishments in Oceania.

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53. SIMMONDS, H. W., Government Entomologist, Department of Agriculture, Suva, Colony of Fiji.

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54. MAKZOURI, Raïmez Bey, Ingénieur agricole en chef du Ministère de l'Agriculture, Beyrouth (Etat du Grand-Liban).

Greece.

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73. LUHTRA, R. S. Lala Jai Chand, M. Sc., D. I. C. (London), F. R. H. S., I. A. S., Associate Professor of Botany, Punjab Agricultural College, Lyallpur, Punjab, India.

India (United Provinces).

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(This list will be completed in the February number).

DISCOVERIES AND CURRENT EVENTS *

Algeria : Swarms of Desert Locust (*Schistocerca gregaria*) during October and November, 1928 (1).

25 October :— a swarm of locusts at Fort Charlet (Djanet).

9, 15, 16, and 17 November :— swarms of grey and pink locusts on the palm plantation at Timi (Adrar).

12 November :— a small swarm of red locusts at N'Gouca, 18 km. N. N. W. of Ouargla.

Australia : Plant Diseases observed in New South Wales (2).

Plant disease records in New South Wales, during the year ending 30th June, 1928 :—

Flag Smut of wheat (*Urocystis tritici*) was most serious in lighter soils subject to low rainfall conditions.

Other wheat diseases of less importance included :—

Foot Rot (*Helminthosporium sativum*), Root Rot (*Wojnowicia graminis*), Take All (*Ophiobolus graminis*), Loose Smut (*Ustilago tritici*), Leaf Rust (*Puccinia triticina*), Leaf Blight (*Septoria tritici*), Stem Rust (*Puccinia graminis tritici*), Bunt (*Tilletia tritici*) and Downy Mildew (*Sclerospora macrospora*).

Oat Smuts (*Ustilago levis* and *U. avenae*) were widespread in oats although they rarely caused appreciable damage.

Leaf Spot of Barley (*Rhynchosporium secalis*) was widespread but caused little damage.

Maize ear, root and stalk rots were due mainly to the action of *Fusarium moniforme*. Head Smut of maize (*Sorosporium reilianum*) was of minor importance.

Gumming on sugar cane (*Bacterium vascularum*) was still prevalent in sections of the North Coastal districts.

The most serious diseases of apple and pear were Black Spot (*Venturia inaequalis* and *V. pirina*) and Powdery Mildew (*Podosphaera oxyacanthae*).

Pear Leaf Blight (*Fabraea maculata*) caused severe spotting of fruits and defoliation of trees in one locality.

* In this, as in the two following chapters, the countries are arranged in the French alphabetical order.

(1) Communication from the Governor General of Algeria to the President of the International Institute of Agriculture.

(2) Communication from the official correspondent to the Institute, Dr R. J. NOBLE, Biologist, Department of Agriculture, Sydney, New South Wales, Australia.

Common and widespread diseases in citrus included Melanose (*Phomopsis citri*), Scab (*Sporotrichum citri*), Brown Spot of the mandarin and Exanthema. Black Spot (*Phoma citricarpa*) caused but little damage. Psoriasis or Scaly Bark, Brown Rot (*Phytophthora hibernalis*) and Black Pit (*Bacterium citriputeale*) were recorded for the first time in this State.

Brown Rot of stone fruits (*Sclerotinia fructicola*) was serious in late varieties of peach and in nectarines on the coastal areas.

Downy Mildew of grape (*Plasmopara viticola*) caused some damage in the latter part of the season and in some cases resulted in severe defoliation and subsequent death of the canes.

Black Spot or Anthracnose of beans (*Colletotrichum lindemuthianum*) and Root Rot (*Fusarium martii phaseoli*) resulted in losses in the coastal areas. Angular Leaf Spot (*Isariopsis griseola*) occurred later in the season and was not of great importance.

Spotted Wilt of tomatoes (virus) caused serious losses in this crop in the early part of the season.

Diseases recorded on cabbages, cauliflowers, etc., included Black Leg (*Phoma lingam*), Black Rot (*Bacterium campestre*), Downy Mildew (*Peronospora parasitica*) and Club Root (*Plasmodiophora brassicae*).

Cirenaica : The Desert Locust (I).

The warning published by the Government of Algeria of the possibility of an invasion of North Africa by the Desert Locust (*Schistocerca peregrina*) known also as *Schist. gregaria*, *Schist. tatarica* or *Acridium peregrinum*, decides me to report a restricted breeding ground observed on the sandy shore of Gariunes, in the south of Benghazi. On the 19th July, 1928 I found there larvae, hoppers and some adults which had not yet reached full sexual maturity. I communicated this discovery to the Government of Cirenaica and was given all necessary facilities for undertaking control in the district. I have therefore visited the Gariunes breeding ground several times a week.

My observations may be summarised thus :—

(1) Throughout the whole period of my investigations, that is to say from 10th July to 1st September, I have been able to find larvae in all stages, hoppers and some adults.

(2) This fact, if the existence of a single swarm is admitted, can be attributed only to irregular embryonic development, perhaps due to weather conditions ; however, I do not wish to put forward any hypothesis which, though easy, would be out of place considering that the biology of *Schistocerca* has not yet been cleared up by observations made during residence at the breeding ground rather than only in the course of short visits from a distance.

(3) Up to the 1st September adults were scarce ; in the following visits I found neither larvae nor hoppers, but only adults of the light grey colour which indicates sexual maturity.

(4) The larvae and hoppers are emerald green, occasionally brownish, with fine dark markings and white spots and have a wide white stripe on each side of

(1) Communication from the official correspondent of the Institute, Mr G. KRÜGER, Entomologist to the Royal Office of Agriculture for Cirenaica at Benghazi.

the abdomen. They live hidden among the branches of *Salsola Kali* (in Arabic "Lebed") which forms a dense and impenetrable scrub here and there on the sandy shore, and do not come out from their hiding place even when the plants are beaten. This *Salsola* forms the principal food of the larvae as is shown by the abundant excreta found under the plants.

(5) In captivity *Sch. peregrina* appears to be heliophobic and feeds mainly at night.

(6) During the time of my observations (19 July-20 September) I was not able to ascertain any migration of larvae or adults. I should, however, state that the locusts were gradually wiped out by their numerous natural enemies so that I abandoned chemical and artificial methods of destruction.

(7) The possibility of an autumnal generation is out of the question, and in view of the lack of previous reports of locusts from the locality it cannot be regarded as a permanent breeding ground.

India: *Acridium peregrinum* (= *Schistocerca gregaria*) in the Punjab (1).

Locust swarms (*Acridium peregrinum*, Oliv.) visited the Punjab from December 1926 to April 1927. One swarm started from the South western corner of the Province; and worked towards North east reaching Gujrat, from where it changed its direction and visited Jhelum, Rawalpindi, Campbellpur and Mianwali districts and deposited eggs there. The other visiting Ambala, Ludhiana and Ferozepur districts. In Rawalpindi heavy rains and hailstorms helped in the direction of the pest. Vigorous egg collecting campaigns were undertaken, and hoppers, when they hatched out, were driven into trenches or burnt on bushes and trees. It is estimated that over 243 maunds of eggs and 4125 maunds of hoppers were thus destroyed. By the end of April the nymphs had decreased in numbers. Calcium cyanide dusting was carried out on fruit trees and in vegetable areas where no cheaper methods could be resorted to. These nymphs developed wings in the end of July and flew away in small local swarms in different directions.

In May 1928 small swarms appeared again, these are probably locally bred locusts. They are being dealt with in the same manner as last year.

VARIOUS QUESTIONS

The International Conference for Plant Protection.

The Permanent Committee of the International Institute of Agriculture in pursuance of the resolution passed at the last General Assembly has decided to hold the International Diplomatic Conference for the Protection of Plants in Rome on the 10th April next.

As already known the object of the Conference is by means of the resulting Convention to promote and make closer and more effective international collaboration for the control of diseases and pests of crops and useful plants.

(1) Communication from the official correspondent to the Institute, Mr M. Afzal HUSAIN, M. Sc. (Pb.), M. A. (Cantab.), I. A. S., Entomologist to Government, Punjab, Lyallpur, India.

Kingdom of the Serbs, Croats and Slovenes : Olive Fly Control in Dalmatia (1).

Olive fly (*Dacus oleae*) control was carried out in 1928 in the island of Iž, in Northern Dalmatia, including the two villages of Iž Veli and Iž Mali with 85,000 olives.

The "Olivasan" preparation of the I. G. Farbenindustrie Aktiengesellschaft of Leverkusen a. Rhein in 4% solution was used in place of the Berlese mixture.

In accordance with the rules already established one branch on the east side of each tree was sprayed, using 400-500 gms. of liquid for each spraying. Spraying was begun simultaneously in Iž Veli and Iž Mali.

At Iž Veli the spray was applied three times. First between the 3rd and 7th of July, again between the 2nd and 6th of August and finally between the 5th and 9th of September. Each of the sprays was thus applied within the space of five days.

The first spray was applied by day-labourers engaged by all the owners together, in order to ensure the spraying of each tree and also so as not to delay the treatment.

The cost of the first spraying was very heavy :— 35,000 dinars or 40 paras per tree. Consequently the second and third sprays were applied by the separate owners under the supervision of a special committee.

At Iž Mali only two treatments were applied, because of an epidemic disease on account of which the village was put in quarantine. This unintentional experiment was of great value as, the results at Iž Mali being almost identical with those at Iž Veli, it showed that three treatments are not necessary, at any rate in the higher districts. This result is in agreement with that of BERLESE in Tuscany in 1922, when during his olive fly control experiments he made two treatments and a third only partially.

There was no rain during the olive fly control work.

In the middle of October the committee made an examination of the olive yards in different parts of Iž Veli and Iž Mali, and also, for comparison, of the neighbouring islands of Ugljan and Rava. The results were as follows :— the average infection at Iž Veli was 1.5%, at Iž Mali 2.5%, at Preko 40%, at Ugljan 65% and at Rava 90%.

The olive fly infection in the island of Iž was thus very slight and the "Olivasan" experiment was successful. It is also to be noted that no scorching was found nor any trace of the sooty mould (*Antennaria elaeophila*) on the olive trees.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Spain. — By Royal Ordinance No. 224 of 4 October, 1928 it is established that consignments of fruit being sent from the two provinces of the Canary Islands to Spain from the 1st November, 1928 shall be submitted to inspection and shall be accompanied by a certificate of inspection and quality issued by the "Juntas mixtas de inspección fitopatológica y de calidad" of Santa Cruz de Teneriffe and Las Palmas for the inspection of consignments for foreign export. The Customs Houses

(1) Communication from the official correspondent to the Institute, Mr Petar NOVAK, Director of the Entomological Station of Split.

of Spain and the Balearic Islands from the 15th November, 1928 shall require any consignment of fruit coming from the two provinces of the Canary Islands to be accompanied by a certificate of inspection and quality issued by these "Juntas" without any further examination of the fruits being required on their arrival in Spain or the Balearic Islands. (*Gaceta de Madrid*, Madrid, 16 octubre 1928, año CCLXVII, tomo IV, núm. 290, pág. 352).

Ireland. — By Order of the Department of Agriculture and Technical Instruction for Ireland, dated 18th September, 1928, the Black Scab in Potatoes (Special Area, Ireland), Order, 1924 shall be deemed to have effect in relation to mangels, turnips, cabbages with roots attached, and cabbage plants, and the provisions of the said Order as to movement of potatoes, licences therefor, powers of entry and inspection, and offences, and penalties relative thereto, shall apply according to mangels, turnips, cabbages with roots attached, and cabbage plants, as they apply to potatoes.

This Order shall come into operation on the 1st October, 1928, and may be cited as the Black Scab in Potatoes (Special Area) No. 2 Order, 1928. (*Iris Oifigiúil*, Dublin, October 5, 1928, No. 80, p. 1229).

Italy. — A Ministerial Decree of 20 September, 1928 provides that the Customs authority shall grant permission for the free importation of residues from the distillation of mineral oils up to an amount of 500 quintals per annum, as authorised by the Royal Decree Law No. 1825 of 3 August, 1928 when such residues are intended for the preparation of materials for the control of fruit pests. This freedom from duty was granted on the request of the manufacturers of these preparations provided that their quality be guaranteed by the presentation of a certificate issued by the competent Provincial Economic Council.

For free admission for the purposes specified above the residues from the distillation of mineral oils shall :—

(a) not be utilisable as illuminants nor as lubricants for machinery ;

(b) have a density of at least 0.850 at a temperature of 15° Centigrade ;

(c) be black in colour or at least brown or reddish ; in order that residues of a lighter colour may be classed for the purposes of schedule 644 of the Customs House scale as intended for the preparation of materials for the control of fruit pests an artificial coloration, other than black, is allowed, such colouring matter to be introduced in the presence of the Customs authorities as prescribed specifically for each case by the Customs Department ;

(d) be submitted to inspection by the Customs officials in order that their immediate and exclusive use for the purpose specified in this Decree may be assured.

To this end the Customs authority, represented also by the Royal Officers of Finance, shall have free access to establishments using residues admitted free of duty in order to effect the necessary control by means of the special working registers which the manufacturers shall be required to keep constantly available. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 9 ottobre 1928, anno 69^o, n. 235, pp. 4859-4860).

* * * A Ministerial Decree of 23 October, 1928 fixing the special regulations to be observed in connection with the foreign exportation of cauliflowers coming into force on 15 November, 1928, includes a regulation to the effect that the inflorescence must be healthy, free from insect attacks and protected by healthy leaves. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 27 ottobre 1928, anno 69^o, n. 251, pp. 5237-5240).

. In order to avoid neutralising or hindering the results of the control measures against the olive fly [*Dacus oleae*] by introducing into the province of Imperia olives for crushing coming from infected provinces or districts, it has been determined by Prefectorial Decree of 18 October, 1928 that :—

(1) olives shall be transported to warehouses from orchards or places of importation only in properly closed and sound sacks ;

(2) windows of oil mills and warehouses shall whenever possible be kept closed and all windows, even those which are permanently closed, shall be thoroughly sprinkled inside and out each week with poisoned molasses ;

(3) there shall be suspended from the ceilings of oil mills and warehouses a number — proportionate to the size of the building — of branches of olive trees sprinkled with poisoned molasses diluted with an equal volume of water ;

(4) there shall be placed in oil mills and warehouses a number — proportionate to the size of the building and with the necessary precautions against poisoning — of receptacles of at least 20 cm. in diameter containing poisoned molasses diluted with an equal volume of water ;

(5) similar receptacles containing the same mixture shall also be placed on all olives or other trees growing round the mill or warehouse ;

(6) the poisoned molasses shall be renewed every fortnight and the stale molasses thrown down the water courses or drains with the necessary precautions. (*L'Olivicoltore*, Roma, 1928, anno V, nn. 42-43, p. 4).

Madagascar and Dependencies. — By Decree of 11 September, 1928 article 3 of the Decree of 24 March, 1928 relating to locust control is modified as follows :—

“ The provinces belonging to the following regions :—

Diégo-Suarez, Majunga, Tananarive, Fianarantsoa and Tuléar each forms a separate local board under the direction of the Chief Officer of the Province ”. (*Journal officiel de Madagascar et Dépendances*, Tananarive, 29 septembre 1928, 44^e année, n. s., n° 2215, p. 1052-1053).

Mauritius. — By Proclamation No. 23 of the 18th June, 1928, the importation of the following articles into Mauritius from any country or place whatever, including the Dependencies of Mauritius, is absolutely prohibited :—

(a) Grape-vine plants imported from countries where phylloxera exists, except when such plants are accompanied by a certificate signed by the Director of Agriculture or other competent official authority of the country of origin to the effect that the vines have not been exposed to the infection of phylloxera for the six weeks prior to the date of shipment ; (b) earth, and leaf and garden mould ; (c) sugar canes or cuttings thereof, live plants of all sorts including roots, tubers, cuttings and grafts in any description of earth or soil ; (d) dung or animal droppings (except guano) ; (e) forage ; (f) timber with the bark on.

The importation into Mauritius, from Réunion, of seeds of plants for use as green dressings is absolutely prohibited.

The importation, from Réunion, of sand and ballast shall only be permitted under a permit previously obtained from the Director of Agriculture and subject to such conditions as he may prescribe for the unloading, packing, removal and for the treatment of such a sand and ballast before any use is made thereof.

The importation into Mauritius of tobacco seeds from any country or place whatever, including the Dependencies of Mauritius, shall be permitted only if such seeds are either accompanied by a certificate signed by the Director of Agriculture or other competent official authority in the country of origin to the effect that the

seeds have been properly disinfected before shipment, or failing the production of such certificate, after disinfection in the Colony by the Department of Agriculture before delivery.

The following articles may be imported under a permit previously obtained from the Director of Agriculture :—

- (a) sugar cane or cuttings or any other part thereof and the living vegetable parts (e. g. leaves, stems or roots) of any other member of the family of *Gramineae* ;
- (b) living plants or bulbils of *Agave* or *Fourcroyea* ; (c) tea plants.

The issue of the permit shall be in the discretion of the Director of Agriculture who may attach conditions to the permit and may limit the number of plants, cuttings or other articles aforesaid to be imported.

The following articles when imported under a permit from the Director of Agriculture or where the importation thereof is not prohibited shall be inspected at the port of entry before delivery :—

- (a) sugar canes or cuttings thereof ; (b) live plants of all sorts including roots, tubers, cuttings, grafts and buds ; (c) fresh citrus fruits from any country or place except the Dependencies of Mauritius.

The consignee or his agent shall, upon request, open the coverings and afford the inspecting officer every facility for conducting the examination.

If, on such inspection, the articles are found not to be free from pests or diseases they may be ordered to be destroyed by the consignee or his agent under the supervision of the inspecting officer, or to be subjected to such process of disinfection or treatment as the inspecting officer may prescribe, and the consignee or his agent shall pay in respect of such treatment such fees and charges as are prescribed.

If removal is authorised, all sugar canes or cuttings thereof and live plants of all sorts, including roots, grafts and buds shall be planted in a nursery apart from growing plants of the same kind and shall be subject to inspection by the Department of Agriculture from time to time during twelve months from the date of importation.

If, on such inspection, the articles are found not to be free from pests or diseases not known to occur in the Colony they shall be rooted out and destroyed by the owner under the immediate supervision of the inspecting officer, and if found not to be free from pests or diseases known to occur, they shall be so treated by the owner as may be directed by the Director of Agriculture.

Non compliance with the conditions above mentioned with respect to the disinfection, treatment and planting of the articles imported shall render them liable to destruction at the expense of the owner.

Nothing herein contained shall prohibit or prevent the Government making such importations of articles as it may require for scientific investigations.

The following Proclamations are revoked : No. 81 of 1913, No. 20 of 1924, No. 11 of 1925 and No. 31 of 1926. (*The Government Gazette of the Island of Mauritius*, Port Louis, 22 June, 1928, No. 38, Extraordinary, pp. 255-257).

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NOTES

The Fifth International Botanical Congress.

This Congress which is to be held at Cambridge, England, from August 16 to 23, 1930 will include a section devoted to Mycology and Plant Pathology.